

A taxonomic review of the *Stylidium caricifolium* complex (Stylidiaceae), from south-west Western Australia

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Abstract

Lowrie, A., Coates, D.J. and Kenneally, K.F. A taxonomic review of the *Stylidium caricifolium* complex (Stylidiaceae), from south-west Western Australia. Nuytsia 12 (1): 43-57 (1998). A taxonomic review of the *Stylidium caricifolium* Lindl. complex (Stylidiaceae) is presented. Six species are recognized, including the new taxa, *S. maritimum*, *S. sejunctum* and *S. wilroyense* Lowrie, Coates & Kenneally. Additionally, *S. affine* Sond. and *S. nungarinense* S. Moore are restored to species rank. Recognition of these species is supported by chromosome, allozyme, ecological, geographical and morphological evidence. All six taxa are endemic to south-west Western Australia.

Introduction

Stylidium affine and *S. caricifolium* were recognized as species in the major taxonomic review of the Stylidiaceae by Milbraed (1908). Subsequently *Stylidium nungarinense* was described by Moore (1920) as an inland species closely related to *S. affine* and *S. caricifolium*. However, Carlquist (1969) contended that *S. nungarinense* was identical to *S. caricifolium* except in the hairiness of the leaves and should be reduced to subspecies. Similarly he suggested that *S. affine* differed from *S. nungarinense* only in flower colour and geographical distribution and it too should be reduced to subspecies.

Although *Stylidium affine*, *S. caricifolium* and *S. nungarinense* are clearly related, biosystematic studies (Coates 1982) indicate that they are all quite distinct species. This is supported by data presented here. In this paper *S. affine* and *S. nungarinense* are reinstated as species. Three new species related to *S. caricifolium* are named. All six species are described and illustrated and are referred to here as the *Stylidium caricifolium* complex. They form part of a larger group that belongs to subgenus *Tolypangium* Endl., section *Squamosae* Benth. (Milbraed 1908). All members of section *Squamosae* are characterized by having graminiform, linear, lanceolate or oblanceolate-linear leaves intermixed with shorter scarious scales. The group is commonly referred to as Scale-leaved Triggerplants, a name adopted by us but first used by Rica Erickson (1958).

Cytogenetics and geographic distributions

Three different chromosome numbers are found in the *Stylidium caricifolium* complex, $n = 6$ (*S. sejunctum*), $n = 7$ (in *S. affine*, *S. caricifolium* and *S. maritimum*), and $n = 8$ (in *S. nungarinense* and *S. wilroyense*). In addition, detailed karyotype analysis on species with the same chromosome number has shown that with the exceptions of *S. caricifolium* and *S. affine*, karyotype differences between species are extensive and the karyotypes are generally stable throughout the geographic range of each species (Coates 1995; Coates & James 1996). Figure 1 shows the known distributions of the six species and illustrates their karyotypes. All species pairs are apparently either allopatric or parapatric in distribution except for *S. nungarinense* and *S. sejunctum*, which show a small overlap in range.

Taxonomy

Key to the species in the *Stylidium caricifolium* complex

- 1 Leaf bases surrounded by dense woolly hairs; peduncles 1-flowered ***S. wilroyense***
- 1: Leaf bases not surrounded by dense woolly hairs; peduncles (1)2-6-flowered 2
- 2 Leaves 1 per papery sheath ***S. nungarinense***
- 2: Leaves 2-5 per papery sheath 3
- 3 Leaves scabrid; corolla white ***S. caricifolium***
- 3: Leaves glabrous; corolla pale pink to rose or mauve 4
- 4 Corolla pale pink; occurs inland east of Hyden ***S. sejunctum***
- 4: Corolla rose pink to mauve; occurs along the west coast and inland to Kojonup 5
- 5 Inflorescence 40-55 cm long including scape; peduncles 3-6-flowered.
Lower throat appendages *c.* 3 mm long, white and green with 2 free tips red.
Occurs in coastal regions along the west coast from Lancelin to south
of Mandurah ***S. maritimum***
- 5: Inflorescence 20-30 cm long including scape; peduncles 1-3-flowered.
Lower throat appendages *c.* 1.5 mm long, white. Occurs from east of
Gingin to south-east of Kojonup and west to Dunsborough ***S. affine***

Stylidium affine Sond. (Sonder: 1845: 371). - *Stylidium caricifolium* Lindl. subsp. *affine* (Sond.) Carlquist (Carlquist 1969: 56). *Type*: In confragosis montium continuorum Darling's Range, Perth, [Western Australia], September 1841, Herb. Preiss. No. 2291 (*lecto*: here designated: LD).

Perennial herb, forming a leafy tuft of long erect or recurved leaves in groups of 2-4 arising from a basal papery sheath. *Leaves* lanceolate, 12-30 cm long, 2-4 mm wide, midrib visible on both the adaxial and abaxial surfaces, margins revolute, glabrous. *Inflorescences* paniculate, including scape 20-30 cm long, densely glandular-pubescent; peduncles 1-3-flowered, the basal ones sometimes 8-10 cm long, mostly 2.5-5 cm long, the upper ones shorter; bracts linear, 4-6 mm long; bracteoles 1.5-3 mm long. *Hypanthium* ellipsoid at anthesis, 4.5-6 mm long, 1.5-3.5 mm wide, densely glandular-pubescent. *Sepals* 4.5-5 mm long, 3 free to the base, 2 joined for half of their length or all free to base, glandular-pubescent. *Corolla* rose pink to mauve, lobes vertically paired; anterior lobes 8-11 mm long, 4.5-9 mm wide; posterior lobes 8-11 mm long, 5-8 mm wide. *Labellum* obovate, apex with a rounded lobe, dark pink, *c.* 1.9 mm long, *c.* 1.6 mm wide, papillose, with 2 basal subulate appendages; appendages white, tips dark pink,

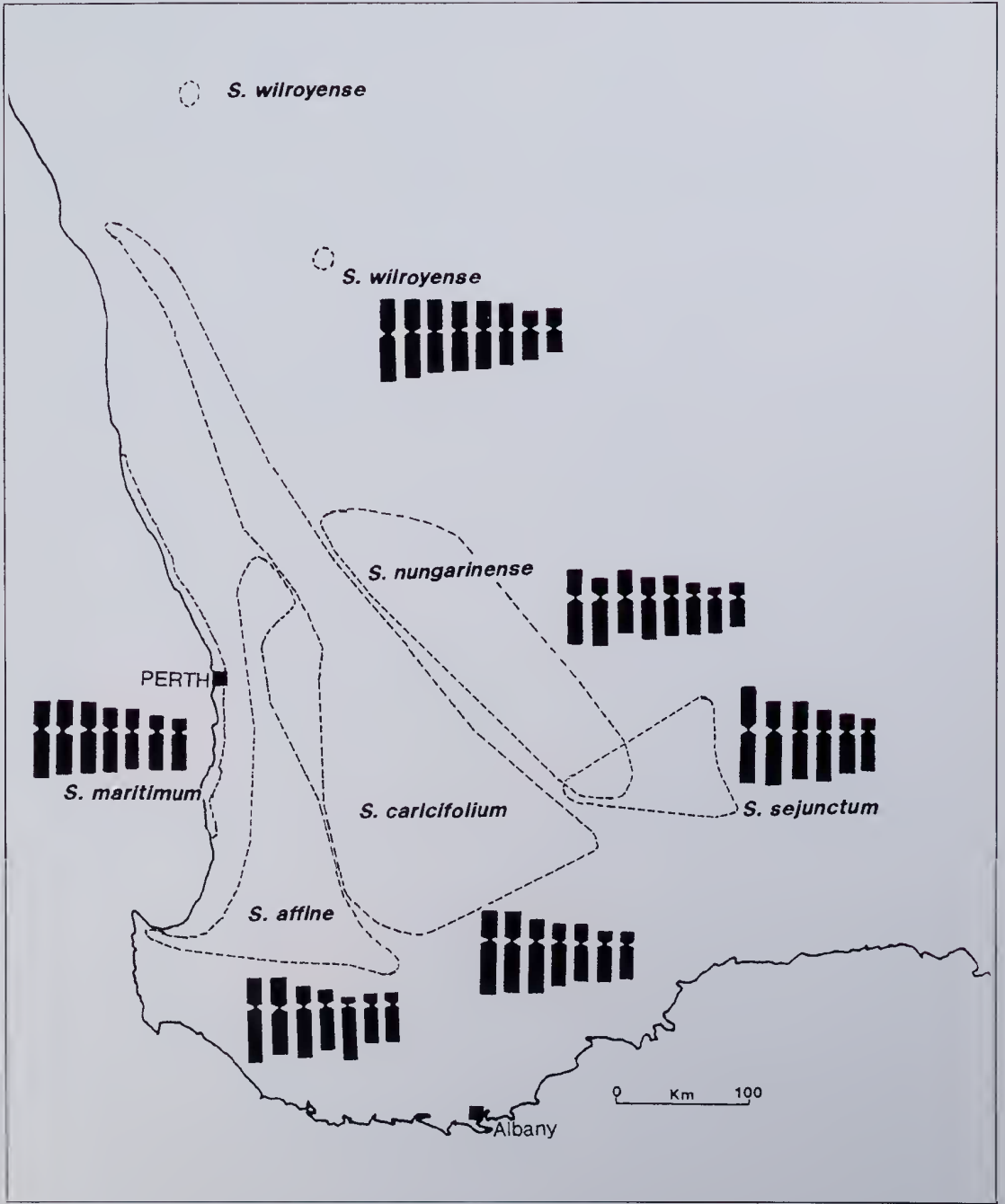


Figure 1. Geographic ranges and karyotypes for *Stylidium affine*, *S. caricifolium*, *S. maritimum*, *S. nungarinense*, *S. sejunctum* and *S. wilroyense*.

c. 1 mm long, papillose; boss ovate, white, smooth, *c.* 1.5 mm long, *c.* 0.8 mm wide. *Throat appendages* 4; upper 2 wing-like, white at the base, pink towards the apex, *c.* 4 mm long; lower 2 narrowly ovate, bifurcate, white, papillose, fused along their length at the base and rolled together to form one point at the apex, *c.* 1.5 mm long. *Gynostemium* 10.5-13.5 mm long. *Capsule* ellipsoid, slightly laterally compressed, 7-9 mm long, 5.5-6.5 mm wide. (Figure 2)

Selected specimens examined. WESTERN AUSTRALIA: Reserve Road, Muchea, 31° 28' S, 116° 00' E, 1 Oct. 1988, *A. Lowrie s.n.* (PERTH); midway along Wandena Road, Muchea, 31° 42' S, 116° 04' E, 7 Oct. 1989, *A. Lowrie s.n.* (PERTH); Kalamunda, 10 Oct. 1926, *A. G. Nichols s.n.* (PERTH); Darlington, 18 Oct. 1931, *R. E. Williams s.n.* (PERTH).

Distribution. *Stylidium affine* is found from east of Gingin in the north, south-east to Kojonup and west to Dunsborough. (Figure 1)

Habitat. Grows in lateritic soils often associated with granite outcrops in open Wandoo (*Eucalyptus wandoo*) woodland. In the southern part of its range, *Stylidium affine* tends to be found in low lying areas associated with open Wandoo or Marri (*Corymbia calophylla*) woodland.

Flowering period. October.

Conservation status. A common species found over a range of at least 300 km.

Chromosome number. $n = 7$ (Coates 1982).

Affinities. Closely related to *Stylidium maritimum* but tends to have more leaves per papery sheath, and the leaves are usually shorter. Other differences are given in the key.

***Stylidium caricifolium* Lindl.** (Lindley 1839: 28). *Type:* Drummond s.n. (CBG).

Stylidium affine var. *laxum* Pritz. (in Diels & Pritzel 1905: 589). *Type:* In distr. Irwin pr. Mingenew in locis glareosis apertis flor. m. Sept. [near Mingenew, Western Australia], September, *Diels* 4249 (*n. v.*).

Stylidium affine var. *minus* Sonder (in Lehmann 1845: 371). *Type:* In glareosis sterilibus districtus Hay [Western Australia], November 1840. (*n. v.*).

Perennial herb, forming a leafy tuft of long erect or recurved leaves in groups of 2 (rarely 3) arising from a basal papery sheath. *Leaves* linear-lanceolate, 10-26 cm long, 1-5 mm wide, margins revolute, midrib visible on both the adaxial and abaxial surfaces, adaxial surface striate, with glassy epidermis cells in the glabrous longitudinal valleys and scabrid indumentum on the longitudinal ridges, abaxial surface glabrous except for the slightly scabrid midrib. *Inflorescences* paniculate, including scape 12-35 cm long, densely glandular-pubescent; peduncles 1-3-flowered, the basal ones 2.5-4.5 cm long, the upper ones shorter; bracts linear, 5-10 mm long; bracteoles 2-3 mm long. *Hypanthium* ellipsoid at anthesis, 4-7 mm long, 2-3.5 mm wide, densely glandular-pubescent. *Sepals* 3-4 mm long, 3 free to the base, 2 joined for half of their length, glandular-pubescent. *Corolla* white, lobes vertically paired; anterior lobes 7-13.5 mm long, 5-10 mm wide; posterior lobes 5-10 mm long, 2-5 mm wide. *Labelum* ovate, white, margins mauve, *c.* 1.3 mm long, *c.* 0.7 mm wide, papillose, with 2 basal terete appendages; appendages mauve, tips purple, *c.* 1 mm long, papillose; boss suborbicular, white, *c.* 0.7 mm long, *c.* 0.7 mm wide, smooth. *Throat appendages* 4; upper 2 wing-like, white *c.* 5 mm long; lower 2 narrowly ovate, bifurcate, white,

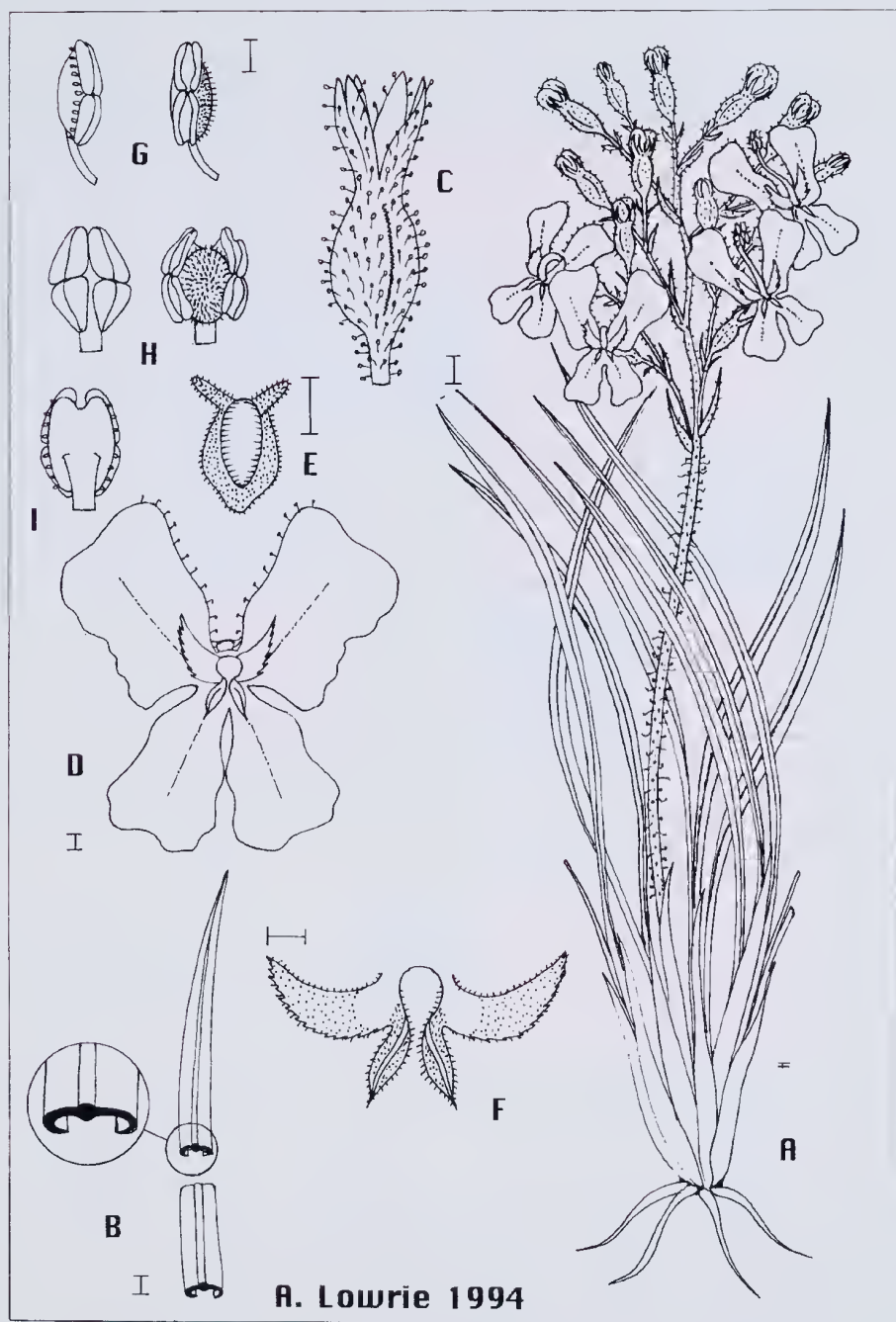


Figure 2. *Stylidium affine* A - habit of flowering plant; B - leaf, enlarged section left; C - hypanthium; D - corolla; E - labellum; F - throat appendages; G - lateral view of gynostemium tip (with stigma at right); H - front view of gynostemium tip (with stigma grown out, right); I - back of gynostemium. Scale bar for all = 1 mm. Drawn from A. Lowrie s.n. 7 Oct. 1989.

papillose, fused together at the base, tips red, free and pointed, *c.* 2 mm long. *Gynostemium* 10.5-15 mm long. *Capsule* ellipsoid, slightly laterally compressed, 9-11 mm long, 4.5-5.5 mm wide. (Figure 3)

Selected specimens examined. WESTERN AUSTRALIA: Quairading to York road, 20 Sep. 1966, R. Filson 8959 (MEL, PERTH); Tarin Rock, 11 Oct. 1966, R. Filson 9382 (PERTH); Corner of Bolgart West Road and Pither Road, *c.* 8 km NW of Bolgart, 31° 13' S, 116° 27' E, 18 Oct. 1988, A. Lowrie s.n. (PERTH); on The Midlands road, 12.2 km NW of Three Springs, 29° 38' S, 115° 50' E, 22 Sep. 1990, A. Lowrie s.n. (PERTH).

Distribution. *Stylidium caricifolium* is the most widespread species in the complex and is found over a wide area of the wheatbelt from Walkaway near Geraldton south to Kojonup and east to Lake Grace. (Figure 1)

Habitat. Grows in lateritic soils in open Wandoo woodland, Marri woodland and *Allocasuarina* scrub.

Flowering period. September-October.

Conservation status. A common species found over a range *c.* 600 km through much of the Western Australian wheatbelt region.

Chromosome number. *n* = 7 (Coates 1982).

Affinities. Closely related to *Stylidium affine*, *S. maritimum*, *S. nungarinense* and *S. sejunctum* but differs by having scabrid leaves. Other differences are given in the key.

Notes. The type locations for *Stylidium affine* var. *laxum* and *S. affine* var. *minus* fall within the geographic range for *S. caricifolium*.

***Stylidium maritimum* Lowrie, Coates & Kenneally, sp. nov.**

S. affine Sond. affini sed foliis 2 (raro 3) per vaginam papyraceam, 2-5 mm latis, 20-40 cm longis, inflorescentia scapo incluso 40-55 cm longo, pedunculis 3-6-floris differt.

Typus: Limestone quarry on Yeal Swamp Road *c.* 3 km east of Wanneroo-Lancelin road, Yanchep, Western Australia, 31° 31' S, 115° 41' E, 22 October 1995, A. Lowrie 1357 (*holo:* PERTH 04430913; *iso:* MEL).

Perennial herb, forming a leafy tuft of long erect or recurved leaves in groups of mostly 2 (rarely 3) arising from each basal papery sheath. *Leaves* lanceolate, 20-40 cm long, 2-5 mm wide, midrib visible on both the adaxial and abaxial surfaces, margins curved but not revolute, glabrous. *Inflorescences* paniculate, including scape 40-55 cm long, densely glandular-pubescent; peduncles 3-6-flowered, the basal ones 2-3 cm long, the upper ones shorter; bracts linear, 5-8 mm long; bracteoles 1.5-2 mm long. *Hypanthium* ellipsoid at anthesis, 5.5-7 mm long, 3-3.5 mm wide, densely glandular-pubescent. *Sepals* 3-4.5 mm long, 3 free to the base, 2 joined for two thirds of their length (rarely free to the base), glandular-pubescent. *Corolla* rose pink, lobes vertically paired; anterior lobes 9-11 mm long, 5-6.5 mm wide; posterior lobes 7-10 mm long, 3.5-5.5 mm wide. *Labellum* ovate, mauve, *c.* 1.6 mm long, *c.* 0.9 mm wide, papillose, margins bearing a few long hair-like stalked glands, with 2 basal subulate appendages, apex acute; appendages mauve with a purple apex, *c.* 1.5 mm long, papillose; boss elliptic, mauve,

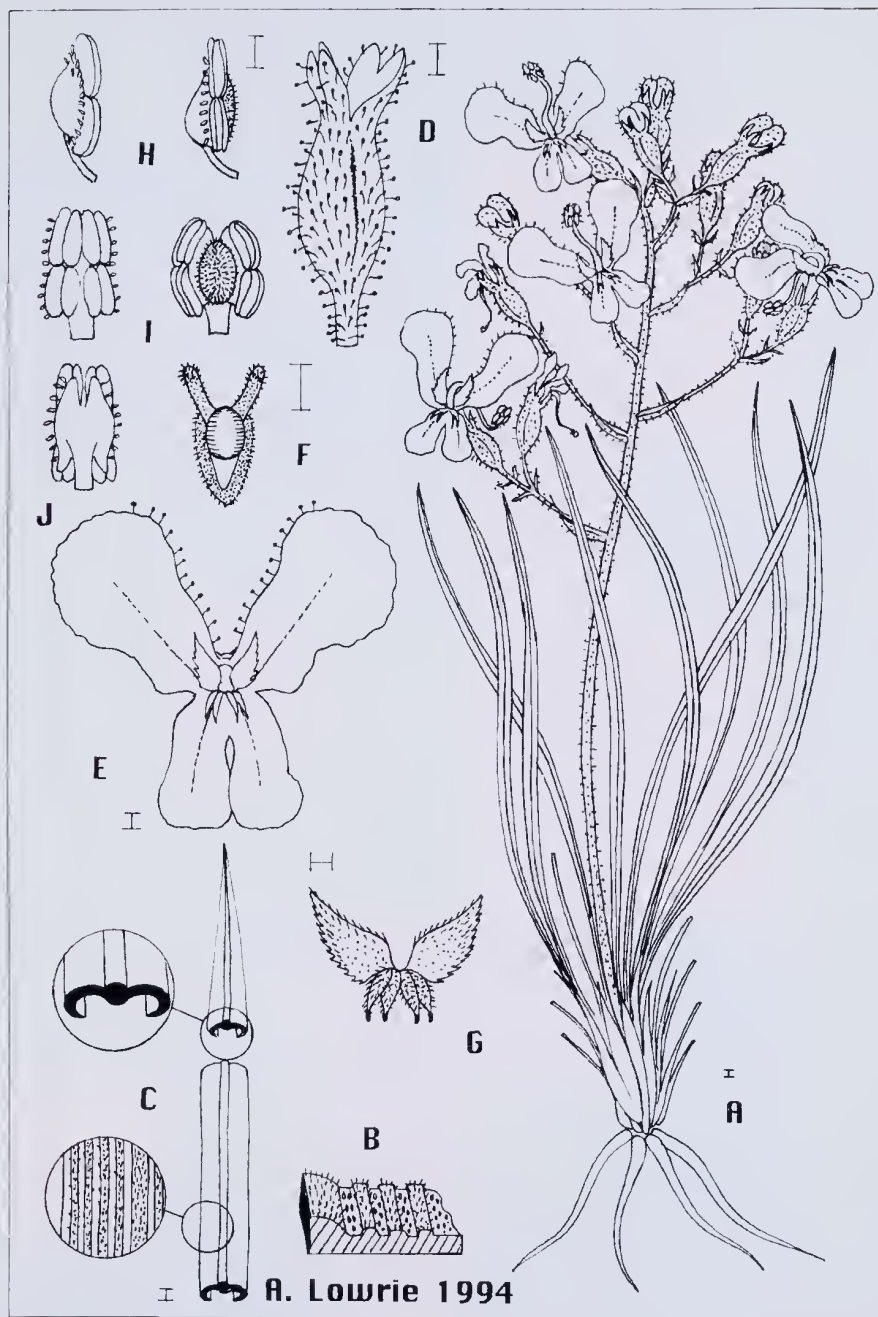


Figure 3. *Stylidium caricifolium* A - habit of flowering plant; B - part section of the striate adaxial leaf surface with half of the midrib on left, showing the glassy epidermis cells in the glabrous longitudinal valleys and the scabrid indumentum on the longitudinal ridges; C - leaf, enlarged section left; D - hypanthium; E - corolla; F - labelium; G - throat appendages; H - lateral view of gynostemium tip (with stigma at right); I - front view of gynostemium tip (with stigma grown out, right); J - back of gynostemium. Scale bar for all = 1 mm. Drawn from A. Lowrie s.n. 18 Oct. 1988.

c. 1.2 mm long, *c.* 0.7 mm wide, smooth. *Throat appendages* 4; upper 2 wing-like, white at the base, pink towards the apex, red margined at the base, *c.* 4 mm long; lower 2 narrowly ovate, bifurcate, white and green on the united base and with two long red points, *c.* 3 mm long. *Gynostemium* 9-13 mm long. *Capsule* ellipsoid, slightly laterally compressed, 8-9 mm long, 5-6 mm wide. (Figure 4)

Selected specimens examined. WESTERN AUSTRALIA: Pinnacles, 37 miles [60 km] N of Lancelin, Oct. 1971, *S. James s.n.* (PERTH); Just N of the Tavern on Wanneroo Rd, Carabooda, 31° 37'S, 115° 44' E, 22 Oct. 1995, *A. Lowrie* 1358 (PERTH); Claremont, 21 Oct. 1899, *A. Morrison* (K); Cottesloe, 21 Oct. 1899, *A. Morrison* (K).

Distribution. *S. maritimum* occurs from Lancelin in the north, southwards to Yalgorup National Park south of Mandurah. (Figure 1)

Habitat. Grows on limestone outcrops in crater-like depressions filled with black sandy soil surrounded by low coastal heath and open *Banksia menziesii* woodland, on consolidated white coastal sand dunes amongst low heath.

Flowering period. October-November.

Conservation status. CALM Conservation Codes for Western Australian Flora: Priority Three. Restricted to coastal dunes between Cervantes and Yalgorup. This species occurs in a habitat particularly prone to land clearing and development. Four populations are known from national parks.

Chromosome number. $n = 7$ (Coates 1982).

Etymology. The epithet, *maritimum* is from the latin *maritimus* - growing by the sea, in reference to this species being found in coastal habitats.

Affinities. Closely related to *Stylidium affine* and Carlquist (1969) considered it to be merely a sand-inhabiting variant of that taxon. However, it differs in its longer leaves; 3-6-flowered peduncles; ovate labellum bearing a few long hair-like stalked glands on the margins as well as longer basal appendages; and longer lower throat appendages with two long, free points.

Stylidium nungarinense S. Moore (Moore 1920: 183). (*Stylidium caricifolium* subsp. *nungarinense* (S. Moore) Carlquist (Carlquist 1969: 54). *Type:* Nungarin, Western Australia, Stoward 785 (*holo:* BM).

Perennial herb, forming a leafy tuft of long erect or recurved leaves singly arising from each basal papery sheath. *Leaves* lanceolate, 10-28 cm long, 2-7 mm wide, midrib visible but not prominent on both the adaxial and abaxial surfaces, adaxial surface striate, smooth, with glassy epidermis cells in the longitudinal valleys, margins curved but not revolute, glabrous. *Inflorescences* paniculate, including scape 12-35 cm long, densely glandular-pubescent; peduncles mostly 2-flowered (rarely 1- or 3-flowered), the basal ones 2.5-3 cm long, the upper ones shorter; bracts linear, 2-5 mm long; bracteoles 1.5-2 mm long. *Hypanthium* narrowly ellipsoid at anthesis, 4-6 mm long, 1.5-2.3 mm wide, densely glandular-pubescent. *Sepals* 3-4 mm long, free to base, glandular-pubescent. *Corolla* white to pale pink, lobes vertically paired; anterior lobes 8-11 mm long, 5-8 mm wide; posterior lobes 5.5-7.5 mm long, 1.5-3.5 mm wide. *Labellum* ovate, white, *c.* 1.5 mm long, *c.* 0.8 mm wide, papillose, with 2 basal terete appendages, apex acute; appendages white with red tips, *c.* 0.6 mm long, papillose; boss widely elliptic, white, *c.* 0.6 mm long, *c.* 0.5 mm wide, smooth. *Throat appendages* 4; upper 2 wing-like, white, *c.* 5 mm

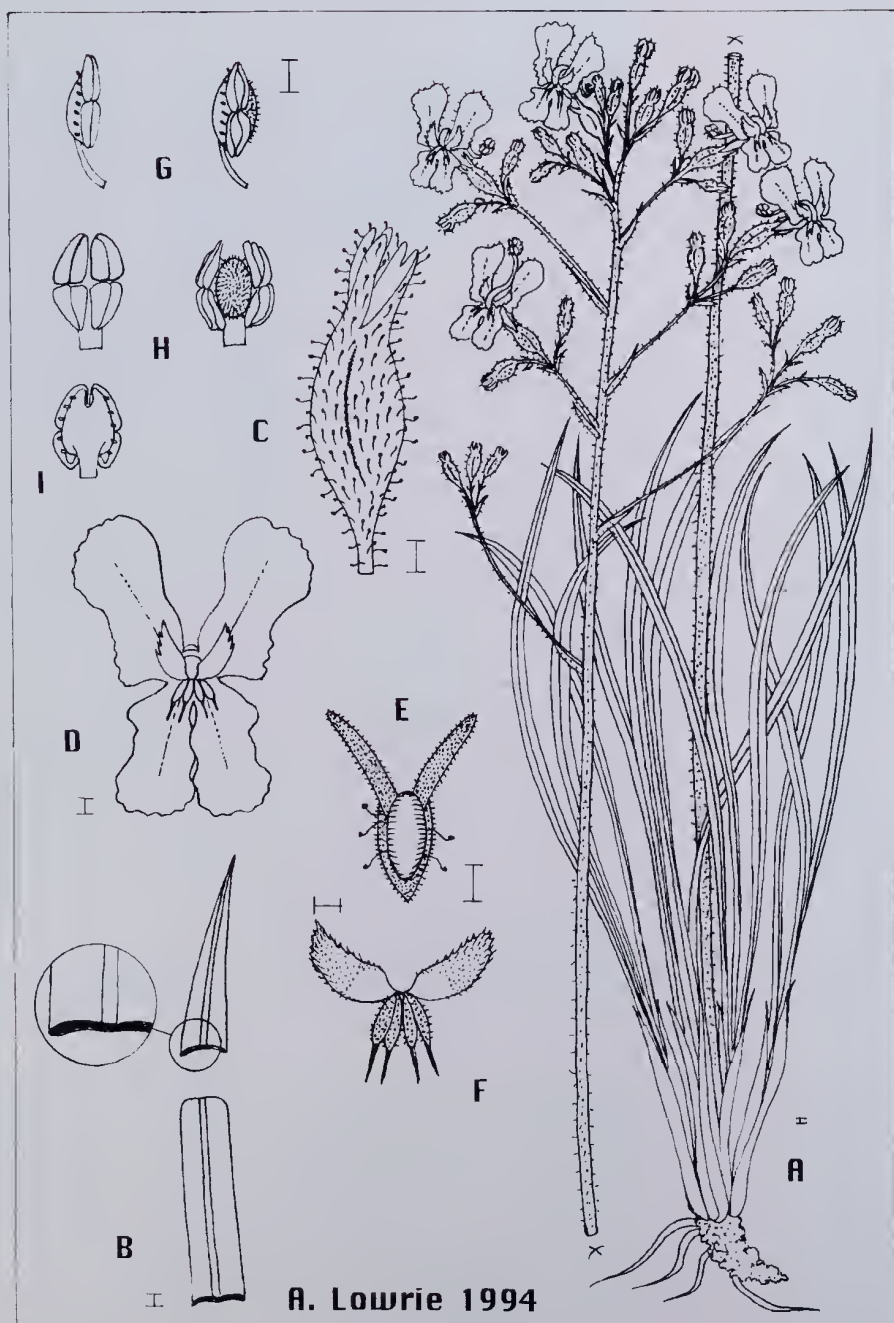


Figure 4. *Stylidium maritimum* A - habit of flowering plant; B - leaf, enlarged section left; C - hypanthium; D - corolla; E - labellum; F - throat appendages; G - lateral view of gynostemium tip (with stigma at right); H - front view of gynostemium tip (with stigma grown out, right); I - back of gynostemium. Scale bar for all = 1 mm. Drawn from A. Lowrie 1357.

long; lower 2 narrowly ovate, bifurcate, white, red-tipped, c. 1.8 mm long, papillose. *Gynostemium* 9-12 mm long. *Capsule* ellipsoid, slightly laterally compressed, 8-9.5 mm long, 5-6 mm wide. (Figure 5)

Selected specimens examined. WESTERN AUSTRALIA: 10.4 km S of the Yandanooka West Road junction, 3 Oct. 1986, *D. Coates* VA2 (PERTH); Fowlers Gully in the Wongan Hills, 21 Sep. 1974, *K.F. Kenneally* 2323 (PERTH); SE corner of Pederah Nature Reserve, on Lake Grace-Kalgarin Highway, c. 3 km N of Jilikan Flatrocks road, 32°35'S, 118°17'E, 9 November 1995, *A. Lowrie* 1373 (PERTH); Wongan Hills, 10 Oct. 1903, *A. Morrison* 13183 (PERTH); 12 miles [19.2 km] N of Wialki, 4 Oct. 1958, *G.M. Storr s.n.* (PERTH).

Distribution. *Stylidium nungarinense* is found inland from *S. caricifolium* around the eastern areas of the wheatbelt, from Wongan Hills south east to Dragon Rocks. (Figure 1)

Habitat. Grows in lateritic hills and breakaways associated with *Allocasuarina* scrub.

Flowering period. October.

Conservation status. Although not a common species it is distributed over a relatively large area with a number of populations on nature reserves.

Chromosome number. $n = 8$ (Coates 1982).

Affinities. Closely related to *Stylidium affine* but differs in having 1 leaf per papery sheath.

Stylidium sejunctum Lowrie, Coates & Kenneally, *sp. nov.*

S. affine Sond. affini sed foliis angustioribus, 1-2.5 mm latis, plerumque foliis 4 vel 5 per vaginam papyraceam differt.

Typus: South-east corner of Pederah Nature Reserve, on Lake Grace-Kalgarin Highway, c. 3 km north of Jilikan Flatrocks Road, Western Australia, 32°35'S, 118°17'E, 9 November 1995, *A. Lowrie* 1373 (*holo:* PERTH 04430948; *iso:* MEL).

Perennial herb, forming a leafy tuft of long erect or recurved leaves mostly in groups of 4 or 5 arising from each basal papery sheath. *Leaves* linear, 16-25 cm long, 1-2.5 mm wide, midrib visible on both the adaxial and abaxial surfaces, margins curved but not revolute, glabrous. *Inflorescences* panicate, including scape 25-45 cm long, densely glandular-pubescent; peduncles 2-4-flowered, the basal ones 1.5-3 cm long, the upper ones shorter; bracts linear, 3-8 mm long; bracteoles 1.5-2 mm long. *Hypanthium* narrowly ellipsoid at anthesis, 3-6 mm long, 1.5-2.3 mm wide, densely glandular-pubescent. *Sepals* 3.5-4.5 mm long, 3 free to the base, 2 joined for half of their length, glandular-pubescent. *Corolla* pale pink, lobes vertically paired; anterior lobes 9-11 mm long, 4.5-6.5 mm wide; posterior lobes 7-9 mm long, 3.5-5.2 mm wide. *Labellum* ovate, white with margins reddish at the base, c. 1.9 mm long, c. 0.8 mm wide, papillose, with 2 basal subulate appendages; appendages reddish, c. 0.7 mm long, papillose; boss ovate, pale yellow, c. 1.2 mm long, c. 0.8 mm wide, smooth. *Throat appendages* 4; upper 2 wing-like, pink, c. 2.5 mm long; lower 2 narrowly ovate, bifurcate, pink, red-tipped, c. 2.5 mm long, with white papillae. *Gynostemium* 12.5-14.5 mm long. *Capsule* ellipsoid, slightly laterally compressed, 8-10 mm long, 5.5-6.5 mm wide. (Figure 6)

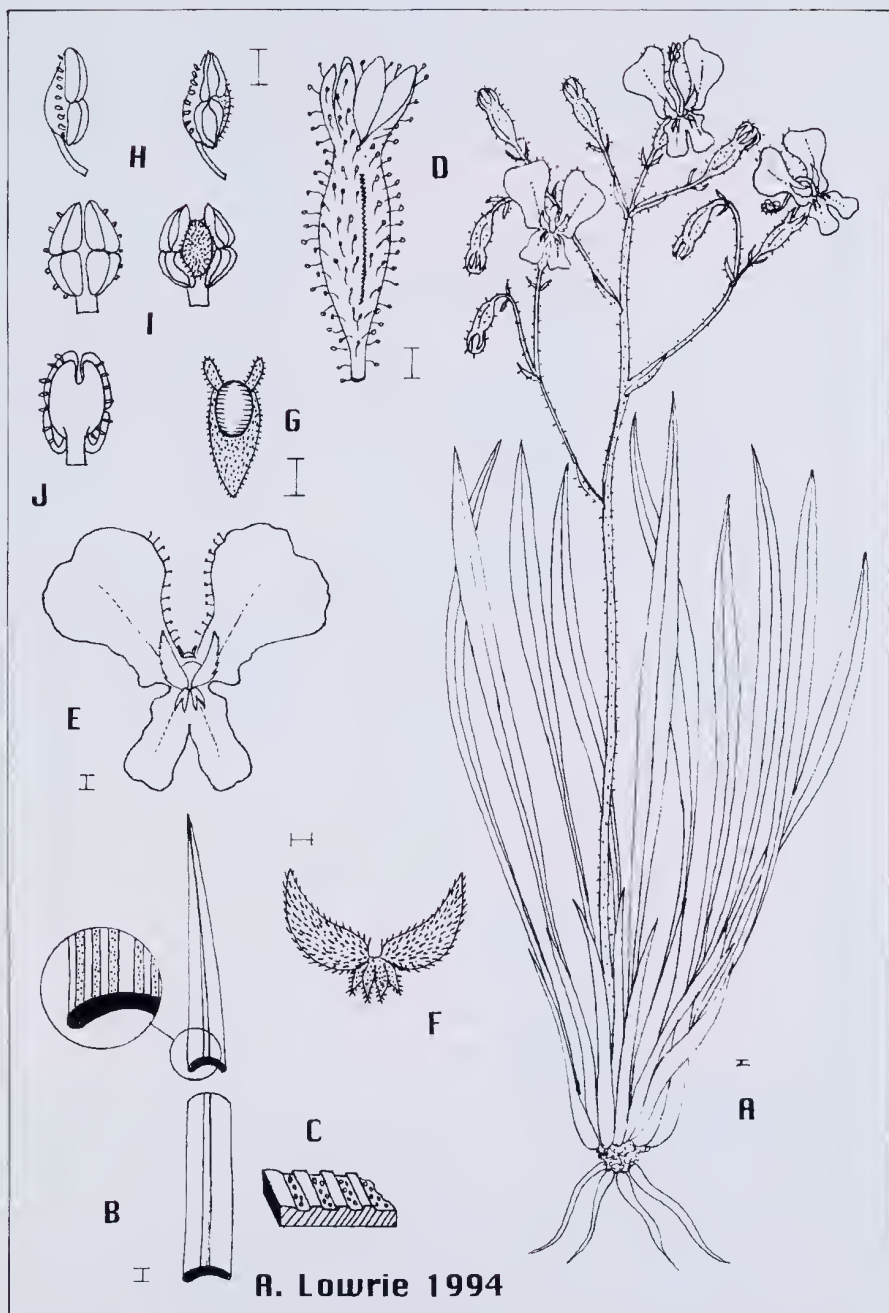


Figure 5. *Stylidium nungarinense* A - habit of flowering plant; B - leaf, enlarged section left; C - part section of the smooth, striate adaxial leaf surface showing the glassy epidermis cells in the longitudinal valleys; D - hypanthium; E - corolla; F - throat appendages; G - labellum; H - lateral view of gynostemium tip (with stigma at right); I - front view of gynostemium tip (with stigma grown out, right); J - back of gynostemium. Scale bar for all = 1 mm. Drawn from A. Lowrie s.n. 1 Oct. 1988.

Selected specimens examined. WESTERN AUSTRALIA: Middle Ironcap, 12 Oct. 1976, *G.J. Keighery* 883 (PERTH); On road from Varley to the junction of Mount Holland-Hatters Hill road, near State barrier fence grid, 32°48'S, 119°31'E, 10 Nov. 1995, *A. Lowrie* 1382 (PERTH).

Distribution. The furthest inland species, *Stylidium sejunctum*, occurs on a series of greenstone hills east of Hyden from Mt Holland in the north to Hatter's Hill in the south and is also found to the west, north of Pingaring. *S. sejunctum* and *S. mungarinense* occur in sympatry at the site north of Pingaring. (Figure 1)

Habitat. Grows in beige sandy loam or in laterite gravel soils surrounded by thick *Allocasuarina* scrub.

Flowering period. October-November.

Conservation status. CALM Conservation Codes for Western Australian Flora: this species is generally restricted to the Iron Caps area east of Hyden but is also found in a nature reserve to the south west, therefore Priority Two is appropriate.

Chromosome number. $n = 6$ (Coates 1982).

Etymology. The epithet is from the latin *sejunctum* - isolated, in reference to this species being located well inland and separated from the majority of species within the *Stylidium caricifolium* complex.

Affinities. Related to *Stylidium affine* but differs in having narrower leaves 1-2.5 mm wide, mostly with 4-5 leaves per papery sheath.

Stylidium wilroyense Lowrie, Coates & Kenneally, *sp. nov.*

S. caricifolio Lindl. affini sed foliis ad basim dense lanatis differt.

Typus: Wilroy, Western Australia [precise locality withheld], 2 November 1995, *A. Lowrie* 1365 (*holo:* PERTH04430964; *iso:* MEL).

Perennial herb, forming a leafy tuft of long erect or recurved leaves singularly arising from each basal papery sheath with a dense woolly covering amongst the leaf bases. *Leaves* lanceolate, 12-15 cm long, 5-6 mm wide midrib visible on both the adaxial and abaxial surfaces, adaxial surface densely scabrid, abaxial surface glabrous, margins slightly curved but not revolute. *Inflorescences* racemose, including scape 42-47 cm long, densely glandular-pubescent; peduncles 1-flowered, the basal ones 15-20 mm long, the upper ones 4-6 mm long; bracts linear, 5-7 mm long; bracteoles 2-3 mm long. *Hypanthium* ellipsoid at anthesis, 6-7 mm long, 3.5-4 mm wide, densely glandular-pubescent. *Sepals* 6.5-7 mm long, free to base, glandular-pubescent. *Corolla* dark pink, lobes vertically paired; anterior lobes 13-15 mm long, 7-9 mm wide; posterior lobes 12-15 mm long, 7-8 mm wide. *Labellum* ovate, dark pink, *c.* 3 mm long, *c.* 1.5 mm wide, papillose, with 2 basal subulate appendages, apex acute; appendages dark pink, *c.* 0.8 mm long, papillose; boss ovate, white, *c.* 2 mm long, *c.* 1 mm wide, smooth. *Throat appendages* 4; upper 2 wing-like, pink, *c.* 1.5 mm long; lower 2 narrowly ovate, bifurcate, with a flat section between, pink, *c.* 1.5 mm long, papillose. *Gynostemium* 19-20.5 mm long. *Capsule* ellipsoid, slightly laterally compressed, 7-8 mm long, 5-6 mm wide. (Figure 7)

Selected specimens examined. WESTERN AUSTRALIA: E of Kalbarri, [precise locality withheld], 2 Oct. 1995, *D. Coates* 795 (PERTH); NE of Mingenew [precise locality withheld], 2 Oct. 1992, *A. Carr* 125 (PERTH).

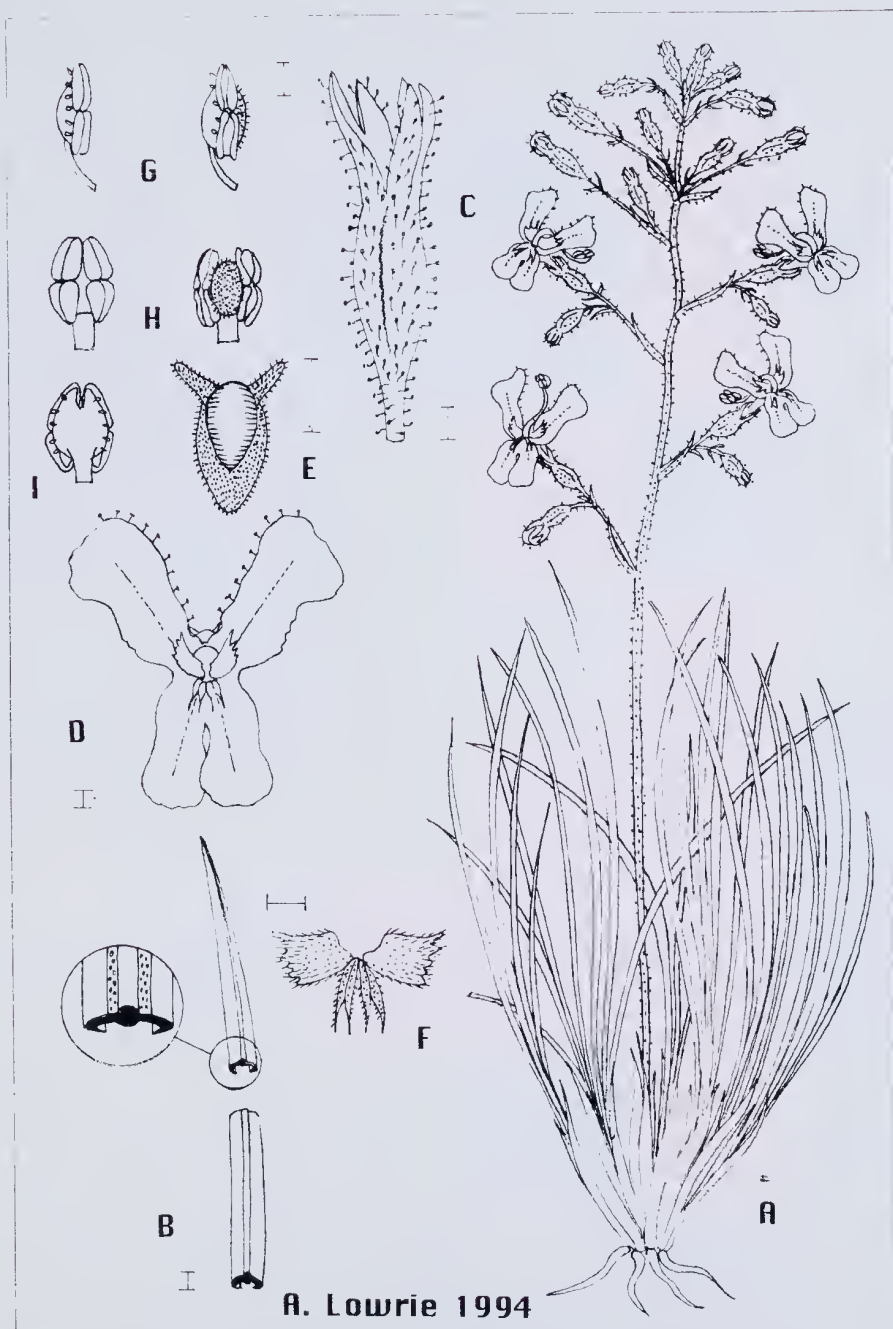


Figure 6. *Stylidium sejunctum*. A - habit of flowering plant; B - leaf, enlarged section left; C - hypanthium; D - corolla; E - labellum; F - throat appendages; G - lateral view of gynostemium tip (with stigma at right); H - front view of gynostemium tip (with stigma grown out, right); I - back of gynostemium. Scale bar for all = 1 mm. Drawn from A. Lowrie 1373.

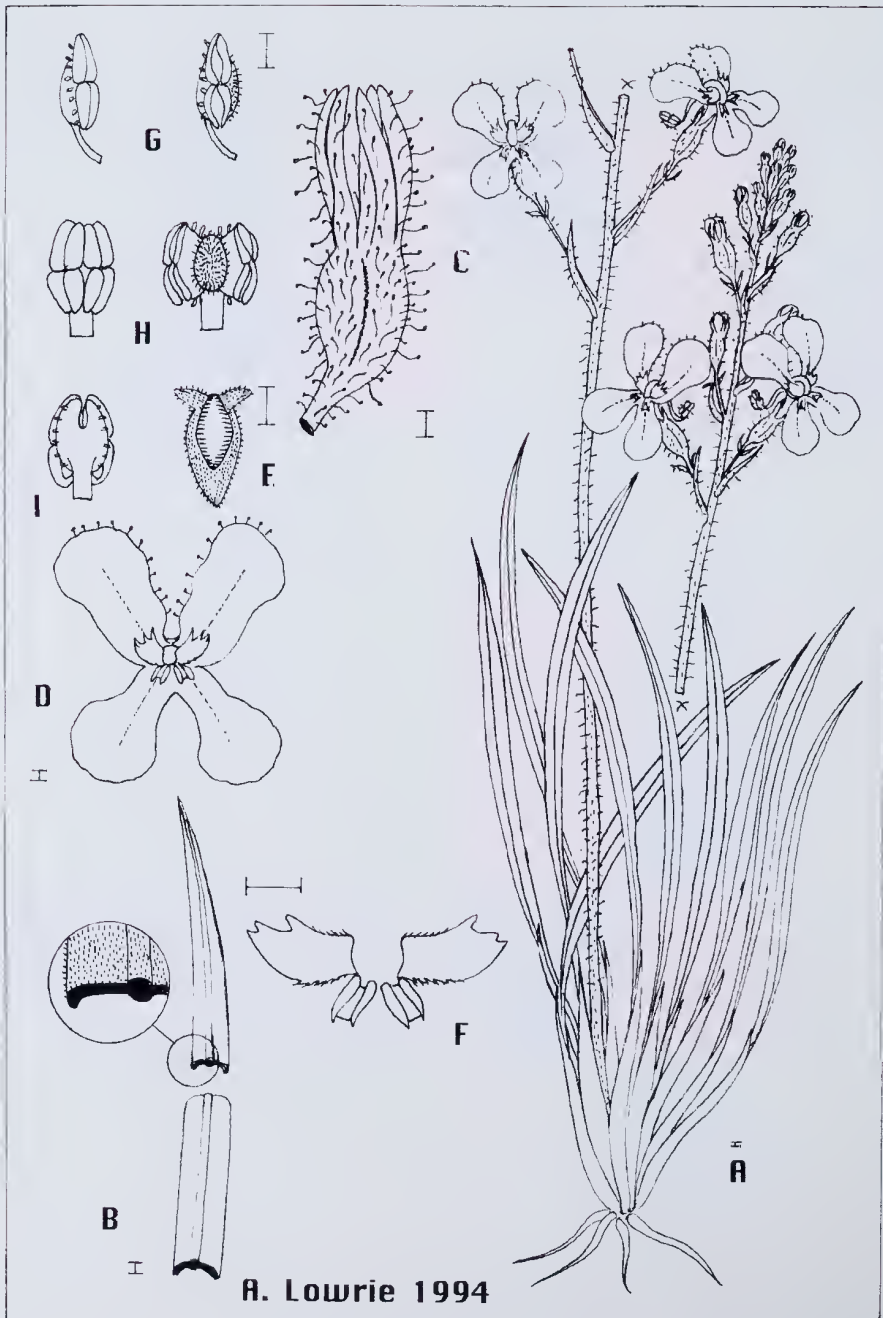


Figure 7. *Stylidium wilroyense* A - habit of flowering plant; B - leaf, enlarged section left; C - hypanthium; D - corolla; E - labellum; F - throat appendages; G - lateral view of gynostemium tip (with stigma at right); H - front view of gynostemium tip (with stigma grown out, right); I - back of gynostemium. Scale bar for all = 1 mm. Drawn from A. Lowrie 1965.

Distribution. This species is only known from near Wilroy and east of Kalbarri. (Figure 1)

Habitat. Grows in light brown sandy loam under 3 m tall *Acacia* species at Wilroy and in yellow sand east of Kalbarri.

Flowering period. October.

Conservation status. CALM Conservation Codes for Western Australian Flora: Priority One with highest priority for further survey and consideration for gazettal as Declared Rare Flora. Only three localities known, all from a largely cleared area of the north-east wheatbelt.

Chromosome number. $n = 8$ (Coates 1995).

Etymology. The epithet, *wilroyense* refers to the Wilroy region in south-west Western Australia where specimens for cytogenic and allozyme studies were collected.

Affinities. Closely related to *Stylidium caricifolium* but differs by having inflorescences racemose, including scape 42-47 cm long; peduncles 1-flowered, the basal ones 15-20 mm long, the upper ones 4-6 mm long, and a dense woolly covering amongst the leaf bases.

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References

- Carlquist, S. (1969). Studies in Stylidiaceae: new taxa, field observations, evolutionary tendencies. *Aliso* 7: 13-64.
- Coates, D.J. (1982). Chromosome, morphometric and breeding system in the *Stylidium caricifolium* species complex. *Austral. Journ. Bot.* 29: 397-417.
- Coates, D.J. (1995). Chromosome re-patterning, genetic diversity and defining conservation units in Western Australian triggerplants (*Stylidium*). In: Brandham, P.E. & Bennett, M.D. (eds). *Kew Chromosome Conference IV*. (Royal Botanic Gardens: Kew.)
- Coates, D.J. & James, S.H. (1996). Chromosome repatterning, population genetic structure and local speciation in south west Australian triggerplants (*Stylidium*). In: George, A.S., Chappill, J.A., Harvey, M.S. & Hopper, S.D. (eds). "Gondwanan Heritage: Past, Present and Future of the Western Australian Biota". (Surrey Beatty & Sons: Chipping Norton, NSW.)
- Diels, F.L.E. & Pritzel, E. (1905). "Fragmenta Phytographiae Australiae occidentalis." (Engelmann: Leipzig.)
- Erickson, R. (1958). "Triggerplants." (Paterson Brokensha: Perth.)
- Lindley, J. (1839). *Edwards Botanical Register-Appendix to Vols 1-23: A Sketch of the Vegetation of the Swan River Colony* xviii.
- Mildbraed, J. (1908). Stylidiaceae. In: Engler, A. (ed.). "Das Pflanzenreich." IV, 278 (35), pp. 1-98 (Engelmann: Leipzig.)
- Moore, S. (1920). A contribution to the flora of Australia. *Linnaean Soc. Bot.* 45: 159-220.
- Sonder, O.W. (1845). Stylideae. In: Lehmann, J.G.C. *Plantae Preissianae* 1: 370-393.